

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**M. E. - SEMESTER – II • EXAMINATION – WINTER 2012**

**Subject code: 1721307**

**Date: 02-01-2013**

**Subject Name: Economic & Evaluation of Transportation Projects**

**Time: 10.30 am – 01.00 pm**

**Total Marks: 70**

**Instructions:**

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**

- Q.1 (a) Fill in the blanks.... 07
- (i) \_\_\_\_\_ is the additional costs incurred when there is a unit change in the existing output of goods and services.
  - (ii) \_\_\_\_\_ is the desire to make trips with the ability to pay for it and \_\_\_\_\_ is the availability of traffic lanes to make the trips.
  - (iii) \_\_\_\_\_ is the degree of responsiveness of quantity demanded to a change of price.
  - (iv) \_\_\_\_\_ is statistically measured in terms of percentage increase in the price index as a rate per cent per unit of time.
  - (v) \_\_\_\_\_ is the power of things and services to satisfy some human wants.
  - (vi) \_\_\_\_\_ cost represents the benefits or revenue forgone by pursuing one course of action rather than other.
  - (vii) Where government pays the investor for each vehicle that enter the stretch is called \_\_\_\_\_
- (b) Differentiate between economic analysis and financial analysis. 03
- (c) What is Utility? Gives forms of Utility with suitable example. 04
- Q.2 (a) Briefly discuss the basic principles of economic analysis. 07
- (b) Explain the factors affecting road user costs. 07
- OR
- (b) Discuss the various methods of economic evaluation & their merits, demerits. 07
- Q.3 (a) Explain latent demand and consumer surplus in details. 07
- (b) Discuss the role of Maintenance & Labour cost & affecting factors in calculation of Vehicle Operating Cost. 07
- OR
- Q.3 (a) Write short note : 07
- (i) Equilibrium of Demand & Supply.
  - (ii) Sources of revenue
- (b) What are the considerations to calculate the accident cost? 07
- Q.4 (a) Differentiate between public and private finance. 07
- (b) Calculate the B/C ratio for the project which has interest rate of 12%. 04

| Year | Cash flow |
|------|-----------|
| 0    | -1,20,000 |
| 1    | 25,000    |
| 2    | 30,000    |
| 3    | 35,500    |
| 4    | 42,500    |
| 5    | 46,500    |

(c) A contractor wants to setup a conform payments. Period of payment to repay a debt of RS.10 lacs is 3 years making payment every year. Rate of interest is 12% per annum. What will be CRF and annual payment to repay the loan?

03

OR

- Q.4 (a) What is National Income ? How it is calculated ?  
(b) Calculate the IRR from the following data.

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| Year | Cash flow |
|------|-----------|
| 0    | -1.80     |
| 1    | 0.35      |
| 2    | 0.35      |
| 3    | 0.40      |
| 4    | 0.45      |
| 5    | 0.50      |

- Q.5 (a) Explain types of inflation in details.

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(b) A light rail system is extended in the sub urban of the city. The following table gives capital cost incurred and expected user benefits to the downtown and out skirts of the city is 30 Km. All the benefits are derived by considering 20 years and 10% of annual rate. Find out best solution?

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| Alternative | Length | Cost | Benefits |
|-------------|--------|------|----------|
| 1           | 5      | 80   | 220      |
| 2           | 10     | 100  | 300      |
| 3           | 15     | 130  | 340      |
| 4           | 20     | 180  | 370      |
| 5           | 25     | 270  | 390      |
| 6           | 30     | 380  | 425      |

OR

- Q.5 (a) Discuss the factors causes the inflation.

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(b) Carry out cost benefit analysis for 40mm thick BC with CRMB 55 verses 50mm thick BC with 60/70 bitumen % of bitumen is 5.5% and density of CRMB 55 is 2.36 gm/cc. Rate of BC with 60/70 bitumen is 3000 Rs./Cumt. Rate of 60/70 bitumen is 11160 Rs/MT and CRMB 55 is 12780 Rs/MT. With 16% excise duty and 4% central sale tax, width of two lane road is 7.25 m and width of shoulder is 1.5 m. Carry out analysis for four lane road.

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